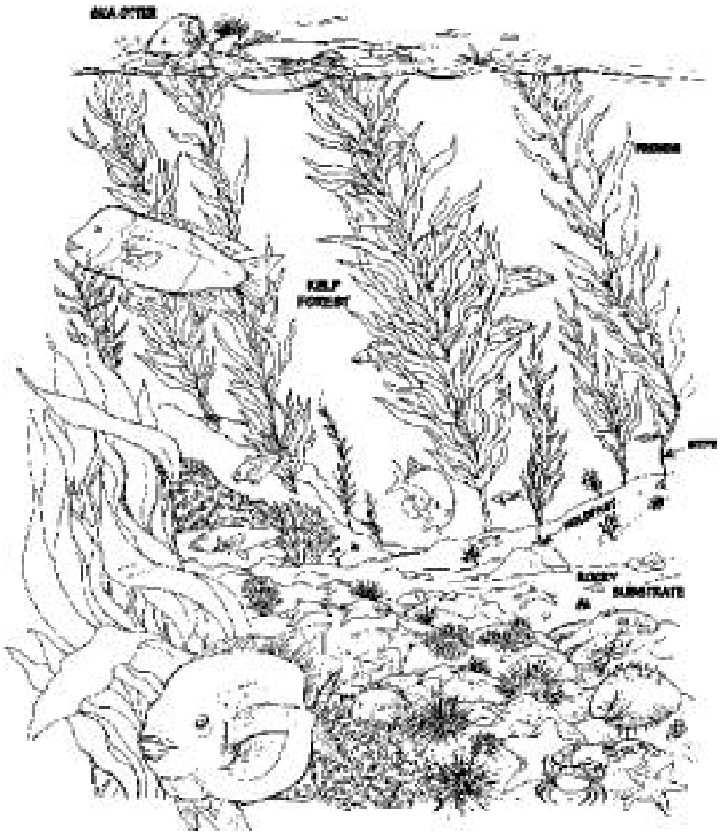
Kelp



Description

- Kelps are very large brown algae that grow on hard subtidal substrates in cold temperate regions.
- Kelps have a holdfast that attaches to the substrate, a stem-like or trunk-like stipe, and large, flattened, leaf-like blades called fronds.
- Because kelps require constant water motion to provide nutrients, they are located in relatively high-energy settings.
- Kelp forests support a diverse animal community of fish, invertebrates, and marine mammals as well as important algal communities.

Predicted Oil Behavior

- Kelp has a mucous coating that prevents oil from adhering directly to the vegetation on the water surface.
- Oil can be trapped in the dense surface canopy, increasing the persistence of oil within the kelp environment.
- Oil persistence in kelp increases the risks of exposure to organisms concentrated in kelp forest habitats.

Response Considerations

- Cleanup efforts are often hampered by the difficulty of recovering oil from the dense canopy.
- Heavy oils could accumulate in sheltered pockets on the bottom, refloat during storms and re-expose resources to the oil.
- Use caution when anchoring vessels and boom to minimize mechanical damage to the kelp.
- Cutting kelp abruptly changes the light regime to the seafloor below.
- Cutting can be more appropriate for some kelp (*Macrocystis* and *Cystoseria*) than for others (*Nereocystis*).
- The impact of dispersed oil is likely to be greater on the community of organisms associated with the kelp habitat than on the kelp itself.
- In situ burning would be conditional on the absence or removal of mammals and birds in the immediate area. The kelp canopy might act as a natural boom against and within which oil can concentrate to burnable thicknesses.

SUBTIDAL

Kelp

Oil Category Descriptions

I – Gasoline products
II – Diesel-like products and light crudes
III – Medium grade crudes and intermediate products
IV – Heavy crudes and residual products
V – Non-floating oil products

The following categories are used to compare the relative environmental impact of each response method in the specific environment and habitat for each oil type. The codes in each table mean:

A = The least adverse habitat impact.
B = Some adverse habitat impact.
C = Significant adverse habitat impact.
D = The most adverse habitat impact.
I = Insufficient information - impact or effectiveness of the method could not be evaluated.
— = Not applicable.

Response Method	Oil Category I	II	III	IV	V
Natural Recovery	A	A	A	B	B
Booming	–	B	B	B	–
Skimming	–	B	B	B	–
Physical Herding	–	B	B	B	–
Manual Oil Removal/Cleaning	–	–	–	–	–
Mechanical Oil Removal	–	–	–	–	–
Sorbents	–	A	A	A	–
Vacuum	–	–	–	–	–
Debris Removal	–	–	–	–	–
Vegetation Cutting/Removal	–	–	B	B	–
Low-pressure, Ambient Water Flushing	–	–	–	–	–
Dispersants	–	C	C	C	–
In-situ Burning	–	B	B	B	–

Consult the *Environmental Considerations for Marine Oil Spill Response* document referenced on page 5 before using this table.